

IMPORTANT INFORMATION FOR USERS AND HANDLERS

Badger Meter transmitters include lithium thionyl chloride batteries, which provide very high energy density and excellent durability. These batteries have received component recognition through Underwriter's Laboratory (UL File MH12568): Badger Meter, Inc. ER6C. However, UL component recognition does not mean the batteries are immune from abuse or misuse by the end user.

Under improper handling, storage or use, these batteries may pose a serious safety hazard in the rare case of a vent or rupture.

The guidelines outlined in this publication are recommendations regarding proper battery use, storage, disposal and recycling. **These guidelines cannot address all battery handling issues.** Please contact Badger Meter, Inc. regarding any questions about battery usage or these guidelines.

BATTERY CONTENTS & MATERIALS

The basic battery contents are:

Lithium metal: A highly reactive alkali metal. May burn in moist air. Reacts violently with water, alcohol, acids and other oxidants. May spontaneously ignite in moist air.

Thionyl chloride: An inorganic liquid which fumes in air to form hydrochloric acid, sulfuric acid and sulfur dioxide gas – all highly acidic and corrosive fumes. Reacts violently with water.

Inerts: Varying amounts of carbon, nickel strips and grids, glass and paper.

Under Federal OSHA regulations, Badger Meter batteries are classified as a manufactured article and do not require a Material Safety Data Sheet (MSDS). The MSDS for lithium may be obtained from Foote Mineral of Exton, PA.; the MSDS for thionyl chloride may be obtained from Hooker Chemical of Niagara Falls, NY.

STORAGE & HANDLING

At all times, batteries not installed in a Badger Meter endpoint must be stored to guard against thermal extremes, charging and short circuits. Batteries should be stored on nonconductive shelves, oriented in the same direction, preferably in original packing or equivalent. Do not stack or allow batteries to touch one another in bins or boxes.

When handling batteries, personnel should take precaution, remove all conductive jewelry and wear safety goggles.

Endpoint assemblies that include lithium batteries may be handled and stored in accordance with the product technical brief.

⚠ WARNING

Any of the following may cause the batteries to leak, vent, rupture, overheat or explode.



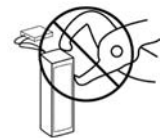
Short Circuit



Fire/Incineration

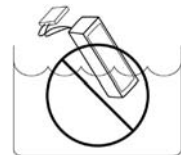


Charge/Recharge
(battery is non-rechargeable)



Crush or Puncture

Disassembly or Removal of Battery from Enclosure with Hardened Epoxy



Expose Battery Contents to Water



Backwards Connection

Force Discharge
(Do not drive voltage below 0.0 volts)

Failure to follow these warnings could result in serious injury.



WHAT TO DO IN CASE OF BATTERY VENTING, RUPTURE, FIRE OR EXPLOSION

Skin or body contact with battery contents should be treated as an acid burn.

- Flush with water for 15 minutes.
- Contact a physician.
- Ventilate area.
- Do not breathe vapors. Use Lithex to control fire and sodium bicarbonate (powder) to neutralize acidic liquids.
- Do not extinguish fire with water or water solutions.

Clean-up and disposal may require acid-type gas mask or respirator along with a face shield, acid-resistant gloves, boots and apron.

BADGER METER TRANSMITTER AND LITHIUM BATTERY RECYCLING & RETURN POLICY

WARNING

Badger Meter will accept returns of any complete ACCESSPlus®, TRACE®, ORION® or GALAXY® endpoint assembly or used lithium battery from these Badger Meter-supplied devices for a fee of \$3.75 per unit. **To take advantage of this program, you must adhere to the following procedures:**

1. To help eliminate problems regarding battery removal and handling, Badger Meter prefers to receive the batteries in the product, rather than removed from the transmitter assembly. Any battery encapsulated in epoxy as part of an endpoint enclosure must be returned as a full endpoint/battery assembly.
2. Shipment of batteries returned to Badger Meter must comply with the requirements of 49 CFR 173.185 "Lithium Batteries and Cells." All batteries must be packaged in a manner that prevents short circuits under conditions normally encountered during transportation. Returning the endpoint assembly with the battery still installed in the endpoint device is the easiest way to adhere to these guidelines.

If batteries have been removed from the endpoint, battery ends must be covered to prevent them from touching one another. This can be accomplished by using duct tape on individual batteries or by taping the individual ends of the wire terminals. Additionally, batteries must be placed in sealed plastic bags and packaged with vermiculite to prevent accidental contact. The outer packaging must comply with 49 CFR 173.24 and 173.24a.

BATTERY DISPOSAL

Local regulations vary. Federal regulations allow up to 100 kg./month of lithium thionyl chloride batteries to be disposed of in common landfill. All leads (terminals) should be taped to prevent short circuit. The user is responsible for safe disposal.

The Badger Meter endpoint and lithium battery return and recycle program is described below.

3. Before returning products to Badger Meter for recycling, you must submit a purchase order for the material being returned. The cost is \$3.75 per each Badger Meter-supplied ACCESSPlus, TRACE, ORION or GALAXY endpoint assembly or lithium battery returned.
4. As the shipper of the material, you are responsible for selecting a transportation mode/carrier, preparing the product for shipment and insuring the product until it is received by Badger Meter. You are also responsible for all shipment costs.
5. Title will not transfer until the product is received at the Badger Meter shipping dock.



Notice: Material cannot ship via air carrier. Any shipment containing lithium batteries is subject to U.S. Department of Transportation Hazardous Materials (HM) regulations. Both the shipper and the carrier bear responsibility for adhering to these guidelines. See the Federal Motor Carrier Safety Administration Web site for details (www.fmcsa.dot.gov). We apologize for any inconvenience; however we are not permitted to arrange return shipments for our customers.

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Please see our website at
www.badgermeter.com
for specific contacts.

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